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## Digging Deeper: Trends by Discipline after 4+ Years into Winthrop's PDA Program

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# Biz of Acq — Digging Deeper: Trends by Discipline after 4+ Years into Winthrop's PDA Program

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## Introduction

Since the October 2011 inception of **Winthrop University's** eBook patron-driven acquisitions (PDA) program, the eBook program has matured and generated usage and expenditure data to a sufficient degree to spot trends between print and eBook preferences by discipline. Usage and expenditures for eBooks and hardcopy materials were analyzed through February 18, 2016. As a follow-up to the last *ATG* issue's kickoff article (which described the study's setup, data strategies, and broad print and eBook usage and expenditure findings from year 2011/12 through 2014/15), this second article in the three-part series shows expenditures and usage trends in more depth by discipline for print and eBooks from year 2011/12 through 2014/15, as well as preliminary usage data gleaned from our new integrated library system (ILS) through February 18, 2016. Following the practice of the previous article, this article offers insights for data-informed collection decisions. The third article (February 2017) will dig deeper into discipline-specific eBook expenditures and usage trends by examining usage and expenditure patterns by eBook collection type within each discipline.

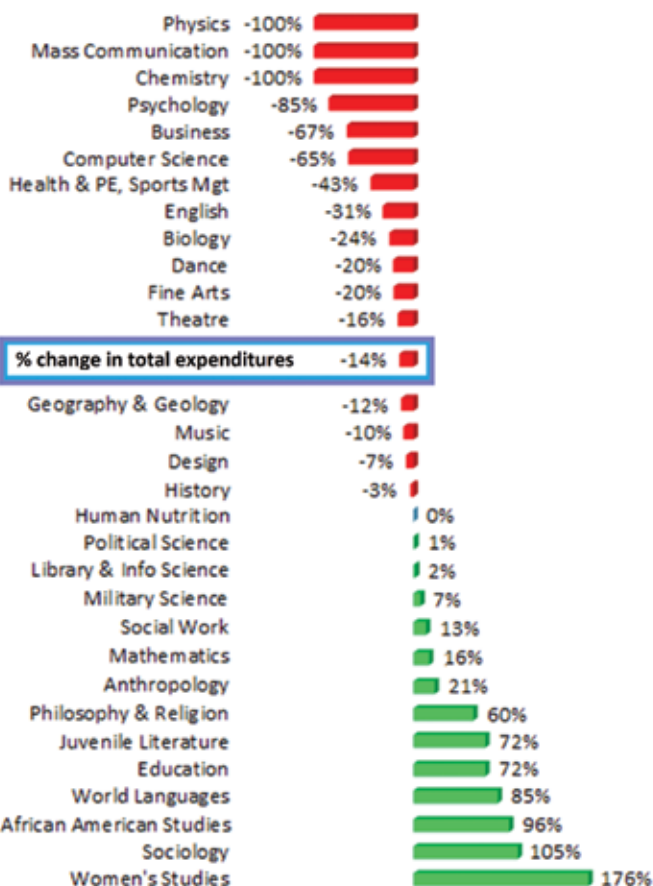
## Outline of the Study

Following up on the previous article's presentation of four years of expenditure and usage data for print and eBooks, this study examines these print and eBook data by discipline. Print and eBook purchase data as well as hardcopy circulation data for 2011/12 to 2014/15 were gleaned from our old ILS. Partial year 2015/16 hardcopy circulation data were extracted from our new ILS. eBook usage data were gleaned from our eBook aggregator. All raw data were exported into Excel, standardized using Access, then analyzed and graphed with Excel for visualization of patterns and trends. **Expenditure data** include PDA and eBook firm order purchases, short-term-loan (STL) payments, eBook firm orders, and print book purchases broken out into 30 academic disciplines and professional fields. Because actual financial amounts could not be published, the study uses indexed values as a compromise for documenting trends and proportionality across formats and disciplines. **Usage data** include actual eBook usage broken out by perpetually owned titles, the PDA discovery pool, and the academic eBook subscription collection, in addition to print circulation. All data were examined in summary and broken out by 30 disciplines. Because July 2015 marked **Winthrop's** go-live with a new ILS that measures circulation differently from the previous system, historical comparisons run from the operating years of 2011/12 through 2014/15. Preliminary comparisons for data since July 1, 2015 were conducted through February 18, 2016. **Variables and definitions:** To ensure meaningful comparisons, hardcopy circulation and eBook usage must be equivalent. Therefore the old ILS's total circulation transactions were compared to total eBook user sessions (as a proxy for total eBook circulation) through June 30, 2015. Conversely, the new ILS currently provides number of titles circulated but not total circulation transactions. Therefore, the new ILS's total number of titles circulated were compared to unique eBook titles accessed for data since July 1, 2015. **Data and analysis plan:** The subject groupings found in the raw data extracted from multiple data sources differed considerably across data sources. Standardizing such data by consistent subject breakdown is inherently labor- and time-intensive. As described in more detail in the previous article, this task was made more efficient by designing a relational database with Access: master tables translate the various sources' Excel-compatible raw data outputs into standardized subject groupings for financial and usage transactions which were then exported back to Excel for further custom analysis and graphing.

## Percentage Changes In Print and eBook Expenditures, 2011-2015

**Print expenditures by discipline — cumulative percentage change: who's up, who's down?** Between 2011 and 2015, **print purchases** went down for 16 areas, up for 13 areas, and remained unchanged for one (Human Nutrition). The overall print book purchases went down by 14%. Within areas, the largest expenditure decline was -100% and the largest rise was +175%. Of the top five declining areas, (1) Physics, Mass Communication, and Chemistry purchases dropped completely, followed by (2) Psychology (down by 85%), (3) Business (down by 67%), Computer Science (down by 65%), and (5) Health & PE (-43%). The top five growth areas in print purchases were (1) Women's Studies (up 176%), (2) Sociology (up by 105%), (3) African American Studies (96%), (4) World Languages (up by 85%), and (5) Education (up by 72%).

### % change print expenditures, cumulative 2011 to 2015

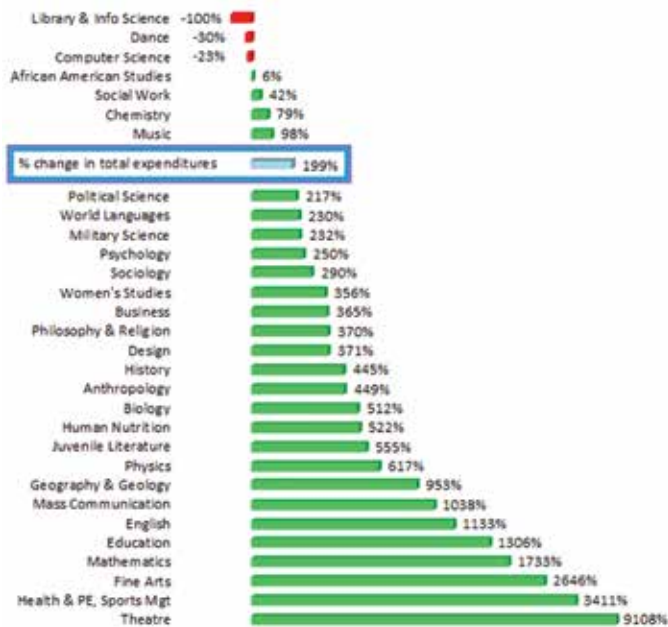


**eBook expenditures by discipline — cumulative percentage change: who's up, who's down?** In contrast to a cumulative 14% decline in print expenditures (owing to budget caps), total **eBook purchases** went up by 400% over the same four years. Moreover, eBook purchase fluctuations within areas were more extreme: The largest

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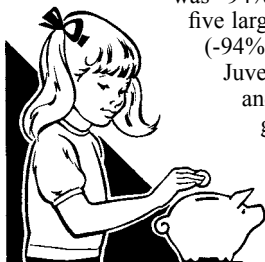
cumulative decline was -100% (Library & Information Science) and the largest increase was +9,108% (Theatre). This vast range stems partly from the PDA program going back to only October 2011 and starting from absolute zero, partly from only sporadic purchasing in some areas, partly due to some areas' true upward trends, and partly because some areas (especially in the arts) had the fewest PDA titles in the beginning and therefore grew by relatively higher percentages. eBook purchasing went down for only three areas: (1) Library & Information Science (down 100%), (2) Dance (down 30%), and (3) Computer Science (down by 23%), reflecting sporadic use-driven purchasing. The top five gainers in eBook purchasing are (1) Theatre (up by 9,108%), (2) Health & PE / Sports Management (up by 3,411%), (3) Fine Arts (up by 2,646%), (4) Mathematics (up by 1,733%), and (5) Education (up by 1,306%).

% change ebook expenditures, cumulative 2011 to 2015

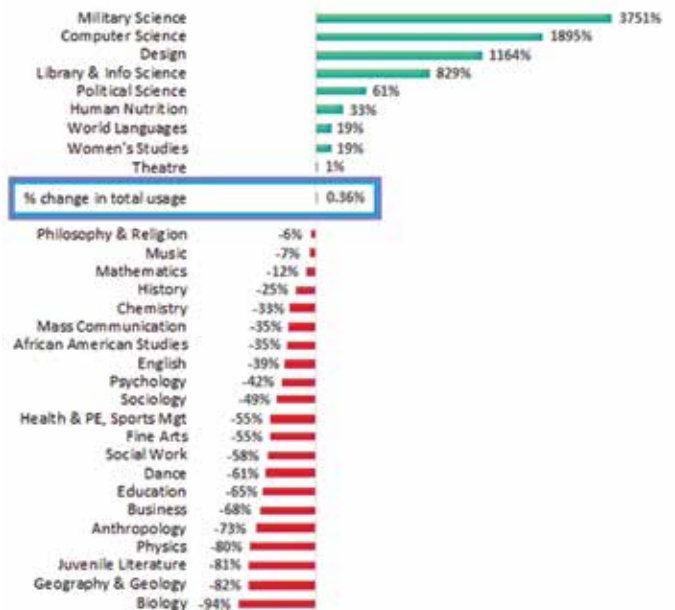


### Percentage Changes In Print and eBook Usage, 2011-2015

**Print usage changes by discipline — cumulative percentage changes: who's up, who's down?** Between 2011 and 2015, total **print usage** went up by 0.36%. Print usage went down for 21 areas and up for 9 areas. The largest decline among disciplines' hardcopy usage was -94% and the largest rise was +3,751%. The five largest usage declines occurred in (1) Biology (-94%), (2) Geography & Geology (-82%), (3) Juvenile Literature (-81%), (4) Physics (-79%), and Anthropology (-73%). The top five print growth areas were (1) Military Science (up by 3,751%), (2) Computer Science (+1,895%), (3) Design (+1,164%), (4) Library & Information Science (+829%), and Political Science in distant 5th place (up by 61%).

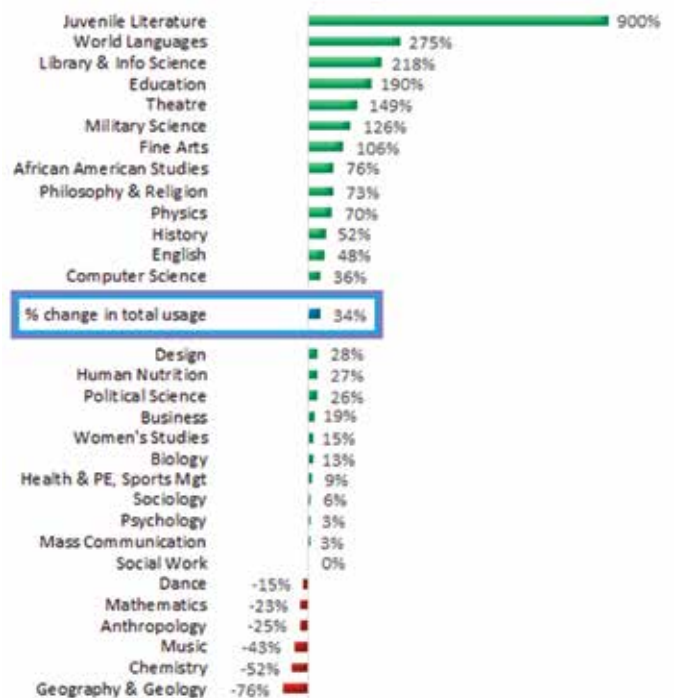


hardcopy usage % change, 2011-2015



**eBook usage changes by discipline — cumulative percentage changes: who's up, who's down?** Between 2011 and 2015, total **eBook usage** went up by 34%. **eBook usage** went up for 23 areas and down for five. Despite the smaller range of eBook usage changes (-76% to +900%) compared to print usage changes (-94% to +3,751%), more areas grew in eBook use, primarily because the eBook collections started from zero and grew much more rapidly than the print collections. The six areas whose usage declined over the four-year period are (1) Geography (-76%), (2) Chemistry (-52%), (3) Music (-43%), (4) Anthropology (-25%), (5) Mathematics (-23%), and (6) Dance (-15%). The top five usage gainers are (1) Juvenile Literature (+900%), (2) World Languages (+275%), (3) Library & Information Science (+218%), (4) Education (+190%), and (5) Theatre (+149%). The disconnect between expenditure gains with same-area usage drops are attributable to instances of one-time PDA purchases followed by a drop in usage-driven STL charges and PDA purchases (e.g., Mathematics). Moreover, the areas with the largest percent increases started with small amounts of expenditures and usage.

ebook % usage chg 2011-2015



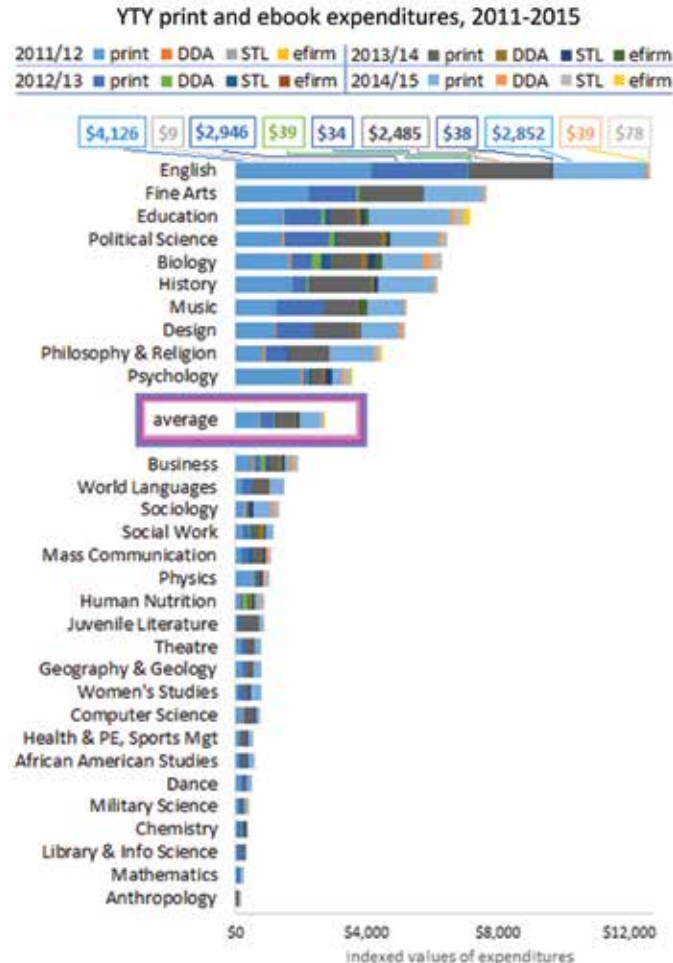
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### Print and eBook Expenditures by Discipline, 2011-2015

Similarly to the last issue's article on broad eBook and print use and expenditure trends, the findings showcased here present eBook and expenditure trends by discipline. This section presents cumulative data for years 2011/12 through 2014/15 and preliminary comparison data from the new ILS for the 2015/16 operating year through February 18, 2016.

#### Subject-specific expenditures for eBooks compared to hardcopy:

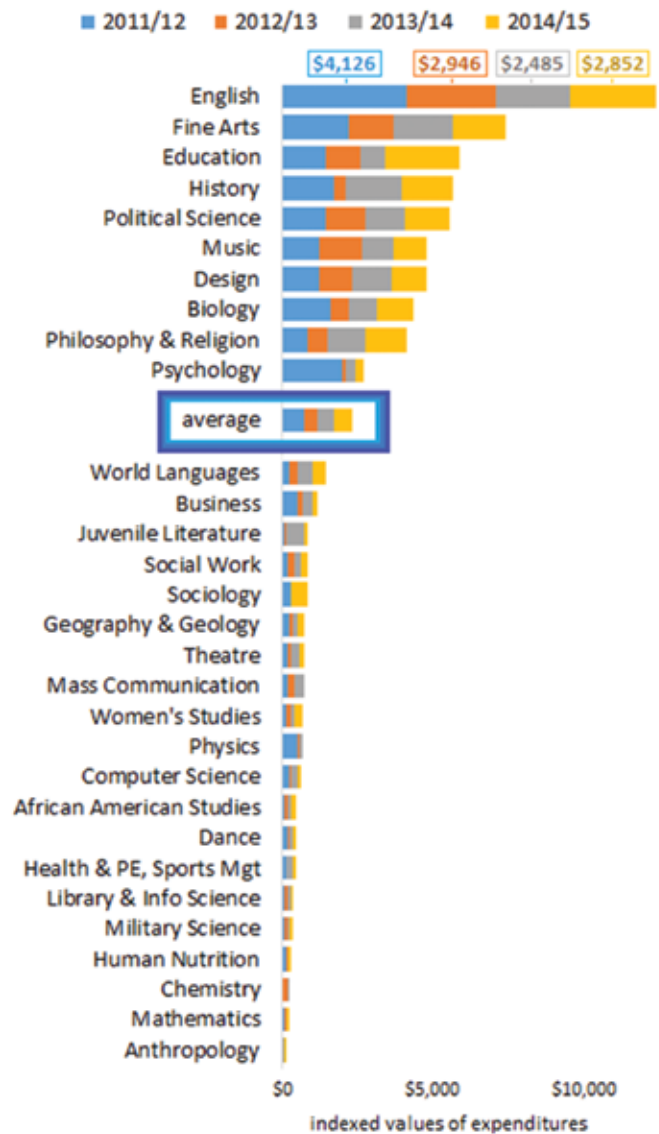
The chart below shows the 30 examined disciplines by each format's expenditures for each of the four years from 2011/12 through 2014/15 (ending June 30). The top five purchasers over the four-year period for print and eBooks combined are (1) English, (2) Fine Arts, (3) Education, (4) Political Science, and (5) Biology.



### Expenditures by Discipline: Print, 2011-2015

The **top five print book purchasers** are (1) English, (2) Fine Arts, (3) Education, (4) History, and (5) Political Science. Of these, two areas are also among the top 5 eBook purchasers: Education (2nd place) and Political Science (3rd).

#### YTY print expenditures, 2011-2015



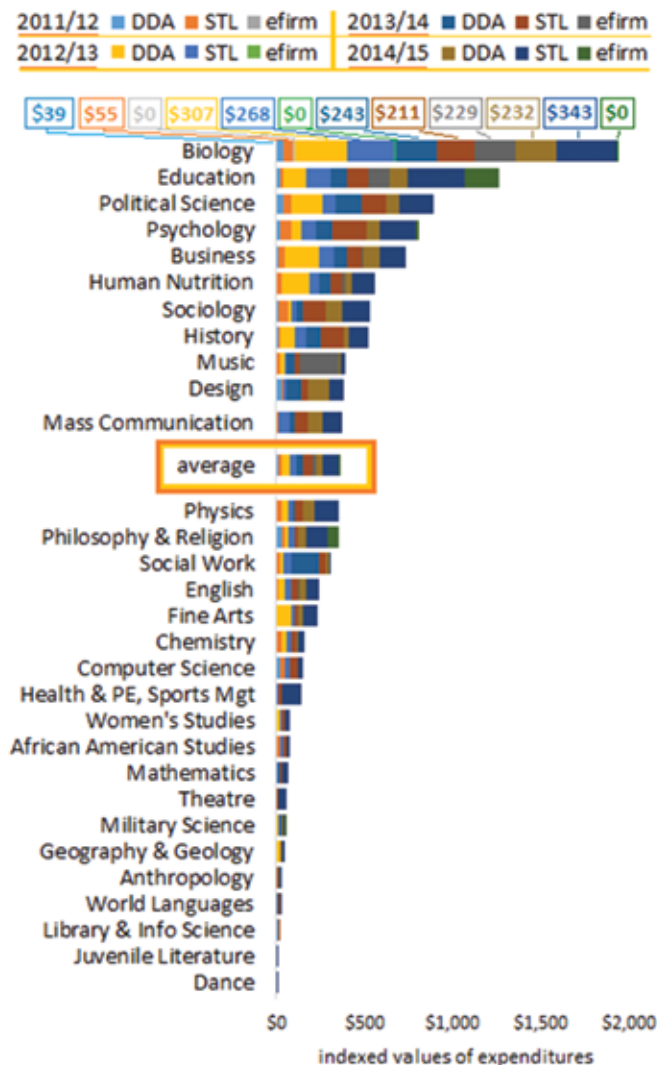
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### Expenditures by Discipline: eBooks, 2011-2015

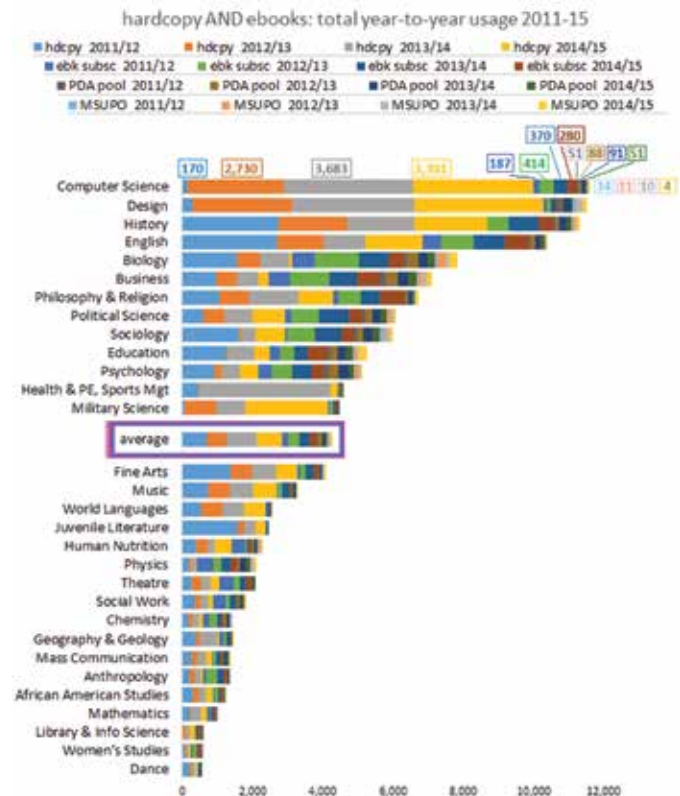
The following chart depicts **eBook expenditures** over the four-year period examined in this study. It shows each area's percentage of total eBook expenditure year-to-year. The **top five eBook** purchasers are (1) Biology, (2) Education, (3) Political Science, (4) Psychology, and (5) Business. Of these disciplines, not all are the largest print purchasers: Education is in 3rd place, Political Science 4th, followed by Biology (8th place), Psychology (10th), and Business in 12th place.

YTY ebook expenditures, 2011-2015



### Print and eBook Usage by Discipline, 2011-2015

**Discipline-specific usage for eBooks compared to hardcopy:** The chart below shows year-to-year hardcopy and eBook usage and depicts the proportions of use between these two formats. While a few areas' eBook usage exceeds their hardcopy circulation (notably Physics, Social Work), eBook usage is not on a consistently upward trend among all disciplines.

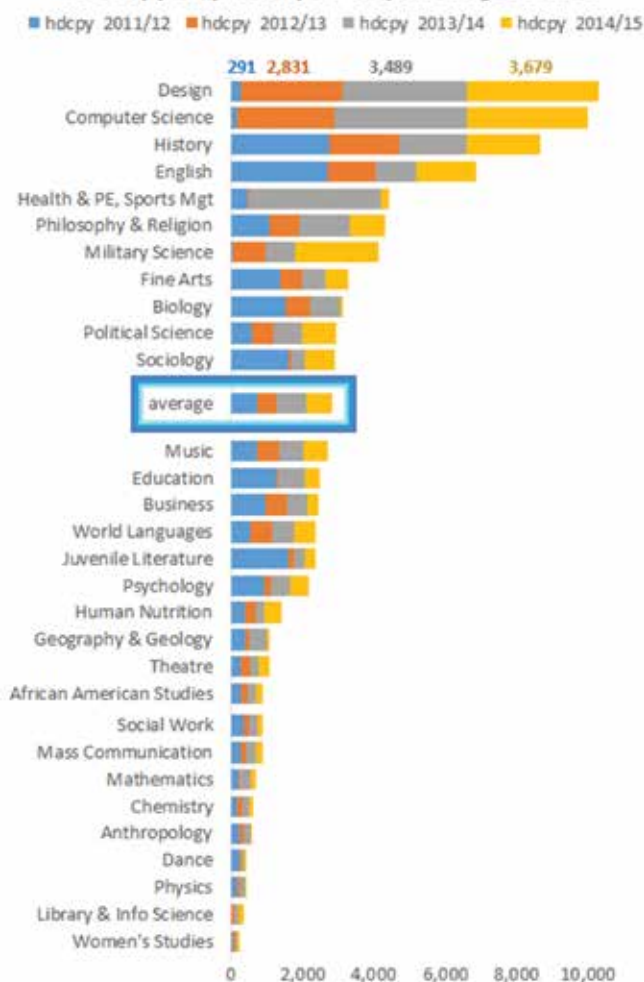


### Usage by Discipline: Print, 2011-2015

Of the top five **print** users, most are also among the higher-ranked purchasers as measured in expenditures, with some notable surprises: The top print users are (1) Design (7th among print purchasers), (2) Computer Science (in 21st place among print buyers), (3) History (in 5th place as print buyer), (4) English (1st-ranked print buyer), and (5) Health & PE (in 24th place among print purchasers). Two top five print purchasers were not among top five users: Fine Arts, the 2nd-ranked purchaser, placed 8th among users; while 4th-placed buyer Political Science placed 10th among users. The most dramatic usage increases occurred in Computer Science and Design, likely owing to the growth in course-taking and research projects in web and software design, interior design, and illustration.

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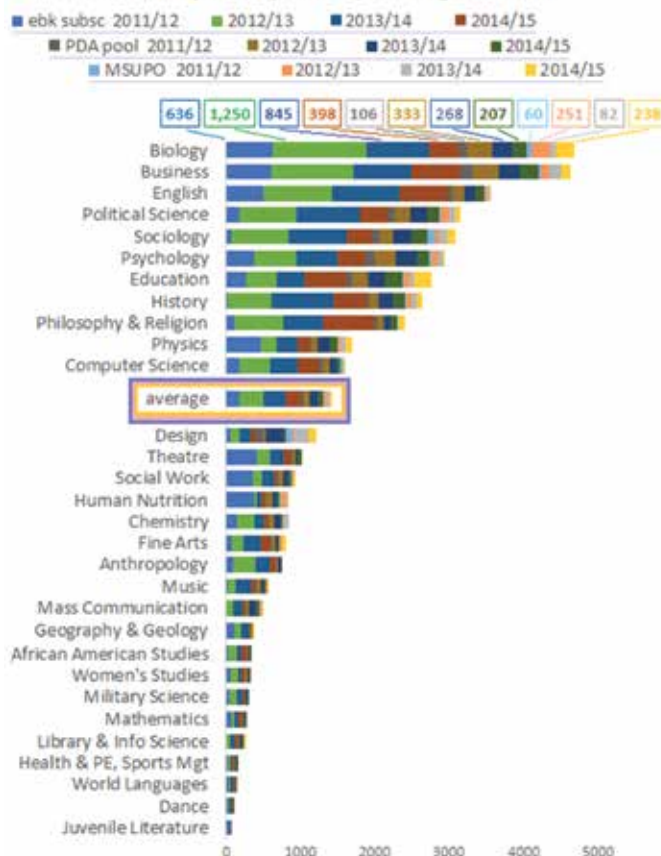
### hardcopy only: total year-to-year usage 2011-15



### Usage by Discipline: eBooks, 2011-2015

Ebook usage was about half that of print usage between 2011 and 2015. The top users of all eBooks were (1) Biology (also the top eBook purchaser), followed closely by (2) Business (in 5th place as eBook purchaser), (3) English (placed 15th among eBook purchasers), (4) Political Science (3rd -ranking eBook purchaser), and (5) Sociology (in 7th place among purchasers). Two top eBook purchasers are not among top five eBook users, but both are among the top ten: Education, in 2nd place among eBook purchasers, ranked 7th among users, while 4th-ranked buyer Psychology is in 6th place among users. Higher-than-usage ranking among purchasers for some disciplines is attributable to purchases of high-priced eBooks with multiple-user licenses.

### ebooks only: total year-to-year usage 2011-15



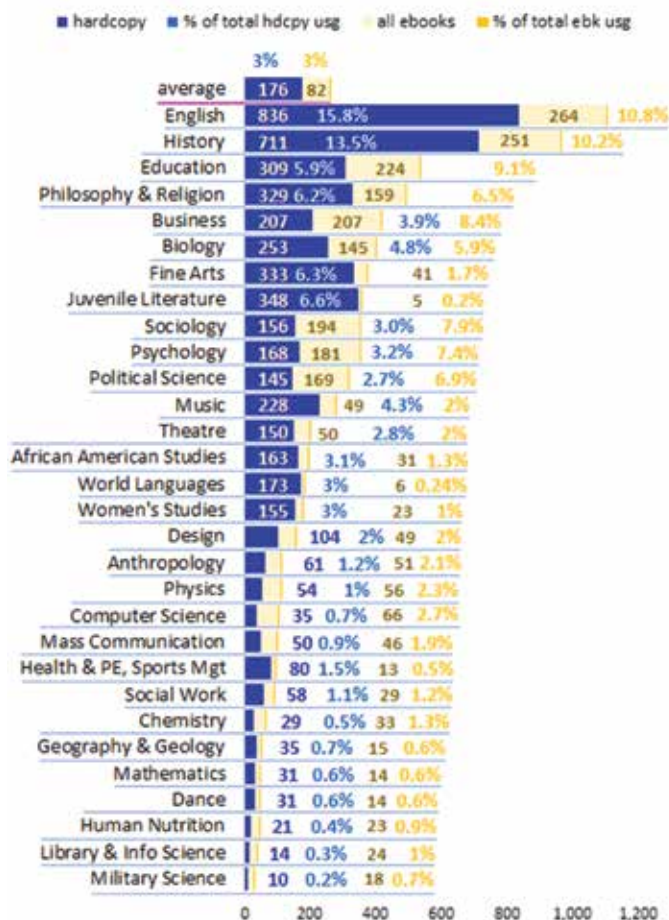
### 2015/2016 Hardcopy and eBook Usage: Preliminary Findings

**New ILS, new data, new measurements:** The new ILS went live July 1, 2015. The preliminary usage report of February 18, 2016 captured new circulation since the system's go-live. Prior years' circulation data had not yet been loaded into the new system, which provided a once-in-a-lifetime opportunity to capture spontaneous usage data as the circulation history was still being populated from scratch at that time. Because the new system currently generates the number of titles circulated but not total circulation transactions, the figures below depart from the prior years' comparisons of total circulation and eBook usage respectively. Here, the figures reflect hardcopy titles which have circulated at least once and the unique titles used from the eBook usage reports.

The biggest user of hardcopy and eBooks, as measured by unique titles used for both formats combined, is English (836 hardcopy titles used; 264 eBook titles used), followed by History, Education, Philosophy & Religion, and Business. Business eBook titles used rose to the number of hardcopy titles used; unique eBook titles used surpassed hardcopy in Sociology, Psychology, and Political Science.

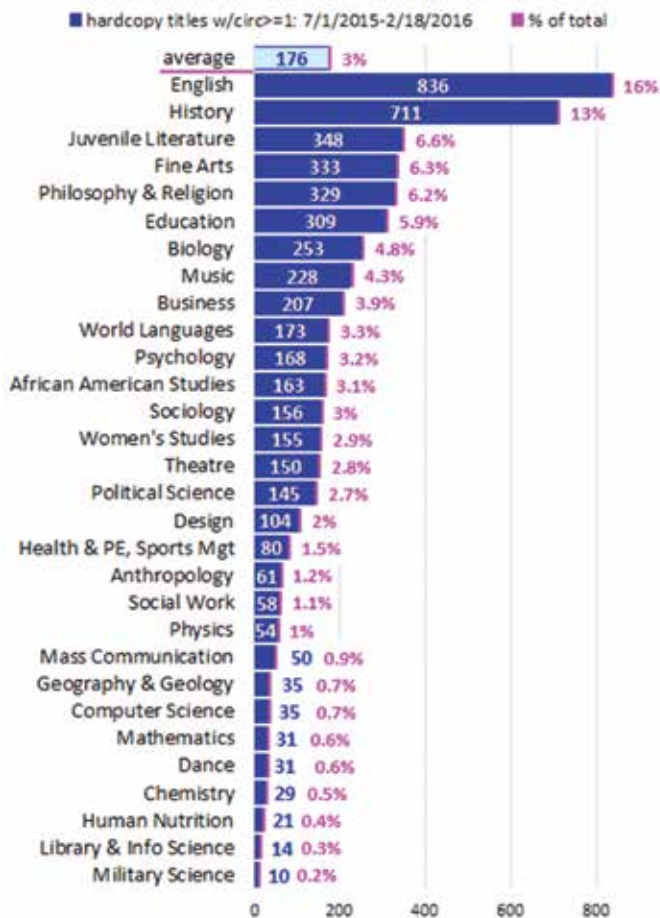
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### Total rankings of hardcopy and ebook titles used fy2015/16 as of 2/18/2016



English used the most **hardcopy** titles, followed by History, Juvenile Literature (used by Education majors learning how to deploy children's books in the classroom), Fine Arts, and Philosophy & Religion. The prior years' top usage by Computer Science is not reflected here – the number of Computer Science titles circulated ranked 7th from last, and the total usage of those titles cannot be gleaned from the new ILS at present.

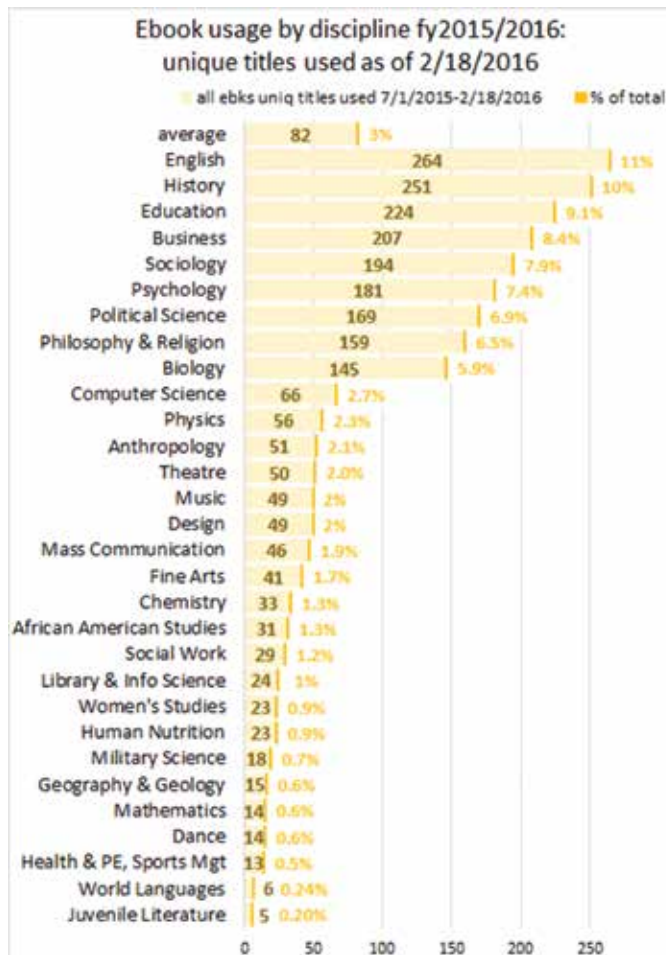
### Hardcopy usage by discipline fy2015/2016: titles with circulation >= 1 as of 2/18/2016



To match eBook usage to the new ILS's number of circulated titles, comparable eBook measures use the aggregators' figures for unique eBook titles used. By this measure, the top five eBook users are English, History, Education, Business, and Sociology.

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**New ILS, preliminary findings:** A lag in loading historical hard-copy circulation data into the new ILS provided the unique opportunity to see organic growth of hardcopy circulation data from zero: For a major portion of the first year with the new system, only newly occurring circulation transactions were populating the circulation statistics. These figures therefore show which subject areas saw the most active use between July 1, 2015 and February 18, 2016. So far, the average number of unique hardcopy titles circulated is over twice that of unique eBook titles used, despite the ease of eBook access. English and History are the top two users of titles for both print and eBooks during this 7.5-month measurement period. Moreover, the print titles used outpaced over three-fold the eBook titles used for the two combined formats' most active users. When the 2015/16 year ended on June 30, 2016, the bulk of prior years' circulation data had migrated to the new system, thus eliminating the fresh view of 2015/2016-only circulation activity. Because year-specific circulation data by subject cannot be extracted from the new system, a full-year 2015/2016 completion of these preliminary data is not feasible at present and a future redesign of extracting and analyzing comparable data is under consideration.

## Implications For Collection Decisions

**Observations:** In the four-year period from 2011/12 through 2014/15, print and eBook expenditures and usage changed considerably. **Print expenditures**, while cumulatively down by 14% on average across all areas, were not uniform in their changes. In fact, print purchasing virtually doubled in several areas in the humanities and social sciences traditionally rooted in print and face-to-face instruction; areas with professional programs, working students, and greater online emphasis reduced their print expenditures. Interestingly, Education expenditures nearly doubled in print and increased over ten-fold in eBooks — a reflection of students who work (especially at graduate levels), hybrid instruction, in addition to continued demand for print in the Education field. **eBook expenditures**, up cumulatively by 199% on average across all areas, rose in most areas because eBook purchasing started from zero, with the highest increases occurring in sciences, education, and business. Many of the highest growth areas reflect disciplines with growing online and hybrid course options, as well as the off-campus access needs of working adults and graduate students. Other areas with rising eBook expenditures (largely in the social sciences and humanities) simply reflect the increasing availability of eBooks in previously little-represented disciplines. The four-year cumulative 0.36% rise of **print usage** masks the vast range of subject-specific growth and decline (from +3,751% for Military Science to -98% for Biology). Similarly, the cumulative 34% rise of **eBook usage** on average across all areas masks the vast range of subject-specific eBook usage growth and decline (from +900% for Juvenile Literature to -76% for Geography & Geology). These changes in print and eBook usage are driven largely by changes in course-project focus, research interests, as well as graduate students and working adults in need of off-site access to scholarly eBooks. The highest percentage changes reflect a combination of growth in very small collections and rising usage driven by growing research interest. In some subject areas, the four-year cumulative print expenditure and usage declines reflect shifts into eBooks. Programs with high enrollments of working adults and graduate students remained top purchasers and users of both print and eBooks. These print and eBook usage characteristics largely persisted in the new library system's preliminary data analysis, even though the new ILS reports collection usage only as unique titles used and not as total circulation transactions - two distinct measures whose differences must be considered when endeavoring to ascertain long-term trends.

**Conclusions:** Rise and decline in print and eBook expenditures and usage were neither uniform nor consistent from year-to-year for each subject area. Some fields' increased purchasing and usage do reflect upward trends, while some other increases are driven by explosion of interest in niche areas (for example, Military Science showing surging research on national and global security); other increases still have resulted more from availability (and subsequent use and purchase) of more eBooks rather than broader subject-related usage trends. Although a few subject areas have indeed begun to trend away from print toward eBooks, other subject areas have fluctuated year-to-year owing to a disparate mix of reasons underlying the observed expenditure and usage changes. Over-reliance on these data gathered thus far for decisions on print retention and weeding would therefore be premature: Continued monitoring of usage and expenditure data is strongly advised to distinguish long-term trends from niche-interest spikes of uncertain longevity and the statistical effects of continual growth in eBook coverage of ever-expanding subject-area reach. **Caveats:** While these overall patterns of print and eBook expenditures and usage provide a solid overview, further insights are needed into the subject-specific reliance on eBook collections (subscription collections, PDA discovery pool, and perpetually owned eBooks). Such deeper insights can be gleaned by measuring the intensity and depth of each eBook collection's usage across academic and professional disciplines — the subject of next issue's article. 🌱